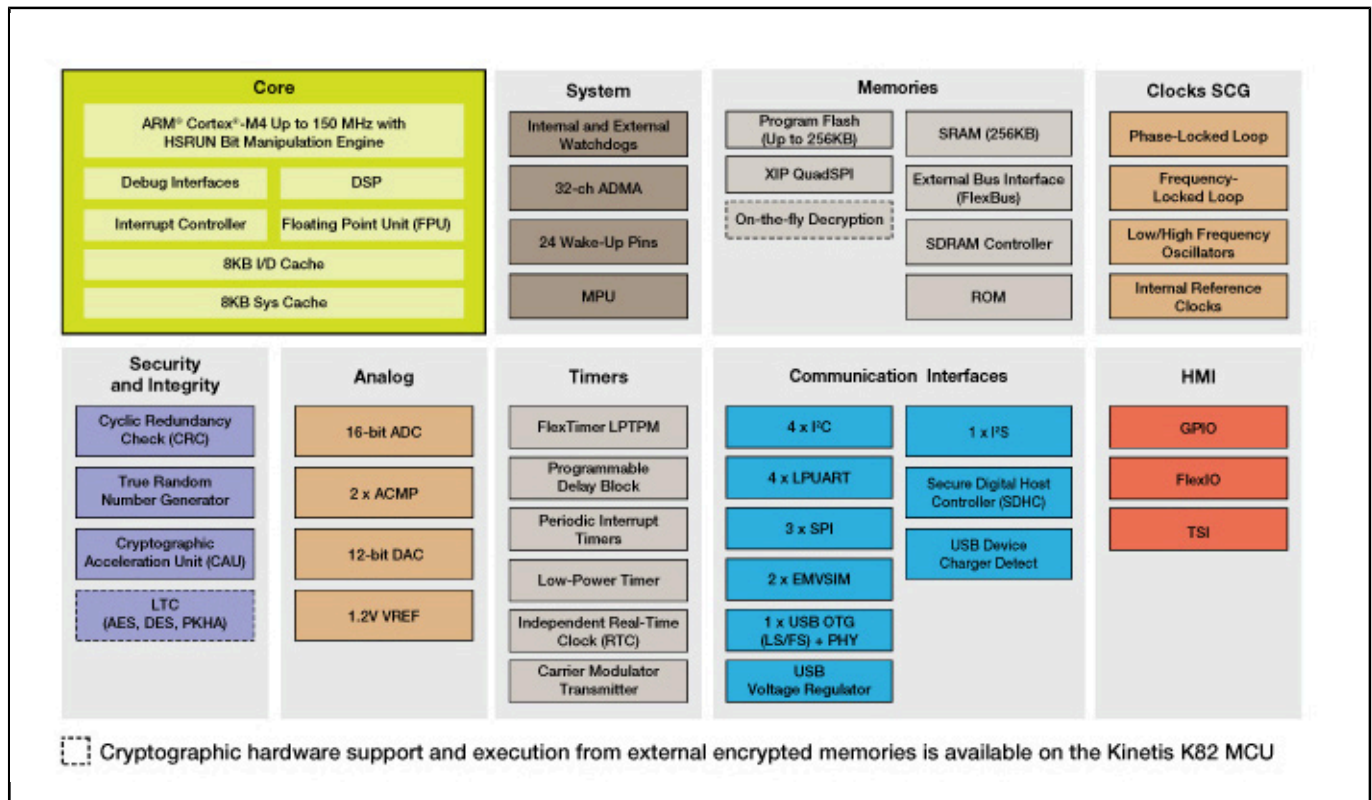# Kinetis® K82-150 MHz HW Cryptographic Co-Processor and QuadSPI Microcontrollers (MCUs) Based on Arm® Cortex®-M4 Core

K82_150

Last Updated: Jul 31, 2023

The Kinetis® K82 MCU sub-family builds upon the Kinetis MCU portfolio with advanced security capabilities including boot ROM to support encrypted firmware updates. The Kinetis K82 MCU contains automatic decryption from external serial NOR flash memory, hardware AES acceleration with sideband attack protection, and hardware support for public key cryptography. These advancements are done while maintaining a high level of compatibility with the rest of the Kinetis MCU portfolio.

Kinetis K80/K82 MCU Block Diagram Block Diagram

Core
ARM® Cortex®-M4 Up to 150 MHz with HSRUN Bit Manipulation Engine

Debug Interfaces | DSP

Interrupt Controller | Floating Point Unit (FPU)

8KB I/D Cache

8KB Sys Cache

System
Internal and External Watchdogs

32-ch ADMA

24 Wake-Up Pins

MPU

Memories
Program Flash (Up to 256KB) | SRAM (256KB)

XIP QuadSPI | External Bus Interface (FlexBus)

On-the-fly Decryption | SDRAM Controller

ROM

Clocks SCG
Phase-Locked Loop

Frequency-Locked Loop

Low/High Frequency Oscillators

Internal Reference Clocks

Security and Integrity
Cyclic Redundancy Check (CRC)

True Random Number Generator

Cryptographic Acceleration Unit (CAU)

LTC (AES, DES, PKHA)

Analog
16-bit ADC

2 x ACMP

12-bit DAC

1.2V VREF

Timers
FlexTimer LPTPM

Programmable Delay Block

Periodic Interrupt Timers

Low-Power Timer

Independent Real-Time Clock (RTC)

Carrier Modulator Transmitter

Communication Interfaces
4 x I²C | 1 x I²S

4 x LPUART | Secure Digital Host Controller (SDHC)

3 x SPI | USB Device Charger Detect

2 x EMVSIM

1 x USB OTG (LS/FS) + PHY

USB Voltage Regulator

HMI
GPIO

FlexIO

TSI

[ ] Cryptographic hardware support and execution from external encrypted memories is available on the Kinetis K82 MCU

View additional information for Kinetis® K82-150 MHz HW Cryptographic Co-Processor and QuadSPI Microcontrollers (MCUs) Based on Arm® Cortex®-M4 Core.

Note: The information on this document is subject to change without notice.